REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-20 are now present in this application. No claims have been amended. Accordingly, no new matter has been added.

In view of the remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

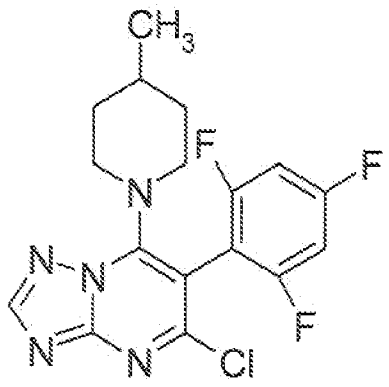
Issues Under 35 U.S.C. § 102(b)

Claims 1-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cotter (EP 988,790) (hereinafter Cotter '790). This rejection is respectfully traversed.

The Examiner asserts that Cotter '790 discloses synergistic fungicidal combinations of azolopyrimidines and quinoxyfen. The Examiner further asserts that Example 15 and Example 16 of Cotter '790 show synergistic results when the fungicidal mixture is used against *Puccinia recondite* and *Blumeria graminis*, respectively.

It is respectfully submitted that the Examiner has failed to establish a *prima facie* case of anticipation. For anticipation under 35 U.S.C.§102, the reference must teach each and every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present.

Claim 1 is directed to a fungicidal mixture comprising a synergistically effective amount of quinoxyfen and the specific triazolopyrimidine derivative of formula (I), reproduced below:



I

The mixture of the invention is highly active against Oomycetes, in particular *Plasmopara viticola*.

Cotter '790 discloses mixtures of triazolopyrimidines with various commercial fungicides, including quinoxyfen. However, Cotter '790 does not disclose Applicants' specific triazolopyrimidine of formula (I). Rather, Applicants' triazolopyrimidine of Formula (I) represents one of an extremely large number of compounds encompassed by the generic azolopyrimidine of Cotter '790. It is well settled that a genus does not always anticipate a claim to a species within the genus. A compound is anticipated only when one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula. *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962). For a compound to be "at once envisaged", one of ordinary skill in the art must be able to draw the structural formula or write the name of each of the specific compounds "envisaged". *Id.*

It is respectfully submitted that one of ordinary skill in the art, when faced with the teachings of Cotter '790, would not have been able to "at once envisage" the specific triazolopyrimidine compound used in the instant invention. The mixture of Cotter '790 comprises two components selected from extremely long lists of potential candidates. The

mixture of Applicants' triazolopyrimidine of formula (I) and quinoxyfen is not disclosed in Cotter '790. Examples 15 and 16 of Cotter '790 disclose a mixture comprising quinoxyfen with a different triazolopyrimidine. Accordingly, since neither the inventive mixture nor the specific triazolopyrimidine of formula (I) are disclosed in Cotter '790, this reference cannot anticipate the present invention.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

Issues Under 35 U.S.C. § 103(a)

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cotter '790. This rejection is respectfully traversed.

The Examiner asserts that Cotter '790 discloses synergistic fungicidal combinations of azolopyrimidines and quinoxyfen. The Examiner acknowledges that Cotter '790 does not disclose the specific combination of the instant invention, but asserts that it would have been obvious to one skilled in the art to utilize the specific compounds of the instant invention "with the expectation of obtaining additional beneficial fungicidal mixture".

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As discussed above, Cotter '790 does not teach the specific triazolopyrimidine of formula (I). Furthermore, Cotter '790 discloses an extremely long list of potential fungicidal compounds with which the generic azolopyrimidine could be mixed. Accordingly, the Examiner has not even established a *prima facie* case of obviousness because there is no suggestion in Cotter '790 that would lead one skilled in the art to the specific combination of the present invention. *In re Baird* 29 USPQ2d 1550 (Fed. Cir. 1994). For this reason alone, this rejection is improper and should be withdrawn.

Furthermore, assuming *arguendo* that Cotter '790 is *prima facie* obvious against the present invention, this is rebutted by the unexpected results obtained by the composition of the instant invention. The mixture of the invention is particularly active against harmful fungi from the class of Oomycetes, in particular *Plasmopara viticola*.

Although Oomycetes are mentioned in Cotter '790, out of forty examples in this reference, none demonstrates or suggests synergistic activity against this class of plant pathogens. As stated on Applicants' Specification (see page 2, second paragraph), the biological behavior of Oomycetes is extremely different from that of the Ascomycetes, Deuteromycetes and Basidiomycetes. This behavior is due to the fact that Oomycetes are biologically more closely related to algae than to fungi. Accordingly, the fungicidal activity of active compounds against true fungi such as Ascomycetes, Deuteromycetes and Basidiomycetes does not necessarily correspond to fungicidal activity against Oomycetes.

At the present time, Oomycetes are not regarded as belonging to the fungi family anymore. This is corroborated by the enclosed excerpts from Wikipedia and Berkeley.edu, which clearly show that ultrastructure, biochemistry and molecular sequences of Oomycetes are different from that of fungi.

Accordingly, it is unexpected in view of the teaching of Cotter '790 that the particular mixture of the invention, which would have to be selected from two long lists of possibilities disclosed by Cotter '790, would show such a good activity against Oomycetes.

It is further unexpected that the mixture of the invention would show markedly superior activity than mixtures of quinoxyfen with the structurally most closely related compounds of Cotter '790, triazolopyrimidines A and C (named A and B, respectively, in the present application). These unexpected results are demonstrated in the comparative tests on pages 11-12 of the present application. The tests show that, by virtue of strong synergism, the mixtures according to the present invention are considerably more effective against peronospora of grapevines caused by *Plasmopara viticola* than the quinoxyfen mixtures disclosed by Cotter '790.

Accordingly, Applicants submit that these unexpected results rebut any *prima facie* showing that could have been established by the Examiner.

Because the invention, as set forth in Applicants' claims 1-20, is not disclosed or made obvious by the cited prior art, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Andrew D. Meikle, Reg. No. 32,868 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: February 28, 2007

Respectfully submitted,

By _____
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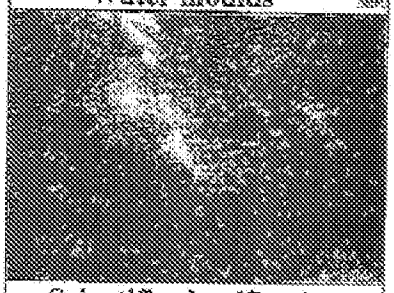
Attachments: excerpts from Wikipedia and Berkeley.edu

Water Mould

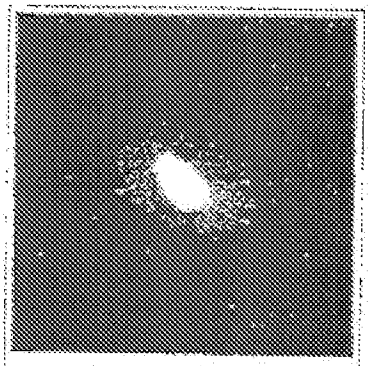
From Wikipedia, the free encyclopedia

Water moulds

Scientific classification
Domain: Eukaryota
(unranked) Chromista
Phylum: Heterokontophyta
Class: **Oomycetes**
Orders
Lagenidiales Leptomitales Peronosporales Pythiales Rhipidiales Saprolegniales Sclerosporales

Water moulds (or *water molds*: see spelling differences) or **Oomycetes** are a group of filamentous, unicellular protists, physically resembling fungi. They are microscopic, absorptive organisms that reproduce both sexually and asexually and are composed of mycelia, or a tube-like vegetative body (all of an organism's mycelia are called its thallus). The name "water mould" refers to the fact that they thrive under conditions of high humidity and running surface water.

Water moulds were originally classified as fungi, but are now known to have developed separately and show a number of differences. Their cell walls are composed of cellulose rather than chitin and generally do not have septations. Also, in the vegetative state they have diploid nuclei, whereas fungi have haploid nuclei.

Instead, water moulds are related to organisms such as brown algae and diatoms, making up a group called the heterokonts. The name comes from the common arrangement and structure of motile cells, which typically have two unequal flagella. Among the water moulds, these are produced as asexual spores called zoospores, which capitalize on surface water (including precipitation on plant surfaces) for movement. They also produce sexual spores, called oospores, that are translucent double-walled spherical structures used to survive adverse environmental conditions. A few produce aerial asexual spores that are distributed by wind.



A water mould from a stream

The water moulds are economically and scientifically important because they are aggressive plant pathogens (see plant pathology). The majority can be broken down into three groups, although more exist.

- The *Phytophthora* group is a genus that causes diseases such as dieback, potato blight, sudden oak death and rhododendron root rot.
- The *Pythium* group is a genus that is even more prevalent than *Phytophythora* and individual species have larger host ranges, usually causing less damage. *Pythium* damping off is a very common problem in greenhouses where the organism kills newly emerged seedlings. Mycoparasitic members of this group (e.g. *P. oligandrum*) parasitise other oomycetes and fungi, and have been employed as biocontrol agents. One *Pythium* species, *Pythium insidiosum* is also known to infect mammals.
- The third group are the downy mildews, which are easily identifable by the appearance of white "mildew" on leaf surfaces (although this group can be confused with the unrelated powdery mildews).

Retrieved from "http://en.wikipedia.org/wiki/Water_Mould"

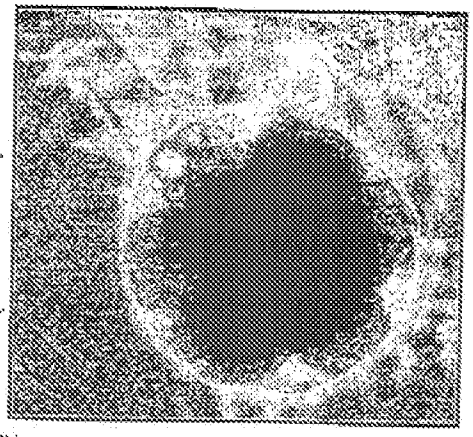
Categories: Heterokonts | Parasitic protists | Water moulds

Introduction to the Oomycota

Water Molds

There are more than 500 species in the Oomycota -- these include the so-called water molds and downy mildews. They are filamentous protists which must absorb their food from the surrounding water or soil, or may invade the body of another organism to feed. As such, oomycetes play an important role in the decomposition and recycling of decaying matter. Other parasitic species have caused much human suffering through destruction of crops and fish.

"Oomycota" means "egg fungi," and refers to the large round **oogonia**, or structures containing the female gametes, as shown in this picture of the common "water mold" *Saprolegnia*. Oomycetes are **oogamous**, producing large non-motile gametes called eggs, and smaller gametes called sperm.



The Oomycota have a very sparse fossil record. A possible oomycete has been described from Cretaceous amber.

Water molds were once thought to be fungi.

The Oomycota were once classified as fungi, because of their filamentous growth, and because they feed on decaying matter like fungi. The cell wall of oomycetes, however, is not composed of chitin, as in the fungi, but is made up of a mix of **cellulosic** compounds and glycan. The nuclei within the filaments are **diploid**, with two sets of genetic information, not haploid as in the fungi.

The ultrastructure, biochemistry, and molecular sequences of these organisms indicate that they belong with the Chromista. The free-swimming spores which are produced bear two dissimilar flagella, one with **mastigonemes**; this feature is common in the chromists, as is the presence of the chemical **mycolaminarin**, an energy storage molecule similar to those found in kelps and diatoms. Thus, although oomycetes are in the minority as heterotrophic chromists, they quite definitely belong with these other chromist groups.

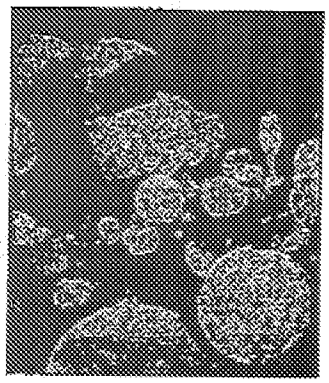
Parasitic water molds damage fish and many crop plants.

Some water molds are **parasites** on other organisms; they may grow on the scales or eggs of fish, or on amphibians. The water mold *Saprolegnia* causes lesions on fish which cause problems when the water is rather stagnant, as in aquaria or fish farms, or at high population densities, such as when salmon swim upstream to spawn. Other species of *Saprolegnia* are parasitic on aquatic invertebrates such as rotifers, nematodes, and arthropods, and on diatoms.

Their greatest impact on humans, however, comes from the many species of water mold which are parasites on flowering plants. These include root rotting fungi, seedling dampening mold, blister rusts, white rusts (*Albugo*), and the downy mildews that affect grapes, lettuce, corn, cabbage, and many other crop plants. Two of these disease-causing chromists have had a major impact on world history

The first of these is *Phytophthora infestans*, the organism which causes late blight of potato. The potato is native to North America, but once it was introduced to Europe, it quickly became an

important food crop. Late blight did not follow its host plant across the Atlantic until much later; the disease organism grows into the stem and leaf tissues, causing death, and may also infest the tubers, which are the part of the plant that is eaten. The disease spreads rapidly under cool and damp conditions, which are common in western Europe. In one week during the summer of 1846, this diease wiped out almost the entire potato crop of Ireland, a crop which was the primary food of the poor at that time. Nearly a million Irish died in the Great Famine, and an additional one-and-a-half million emigrated to other countries, including America. Thus, if you are an American with Irish ancestry, it was probably the oomycetes that brought your family here. Other species of *Phytophthora* destroy eucalyptus, avocado, pineapples, and other tropical crop plants.



The other oomycete which has severely impacted recent history is pictured at right -- *Plasmopara viticola*, the downy mildew of grapes. It also is a native of North America, but in the late 1870s was accidentally introduced to Europe. At the time, the French wine industry was concerned over a massive aphid infestation, and so brought resistant vine strains over from America to breed them into their own grapes. When these American stocks arrived, they also brought the downy mildew, which almost wiped out the entire French wine industry. The industry was saved by the serendipitous discovery of Bordeaux mixture, a mixture of lime and copper sulfate, which brought the disease under control when applied to the leaves of the plants. This discovery is also important for being the first known fungicide, and in fact the first chemical used to control a plant disease.

This picture of *Saprolegnia* may be viewed as part of the Botanical Images Database of the University of Wisconsin: our thanks to them. Images of diseased plants, such as the *Plasmopara* picture, are displayed at the Department of Crop Science at the University of Guelph, in Canada.

For more information about oomycete diseases of plants, try the Texas Plant Disease Handbook maintained by the Department of Plant Pathology and Microbiology at Texas A&M, the Plant Pathology Catalog created by the North Carolina Cooperative Extension Service, and the Kansas State University Department of Plant Pathology.

An informative and well-written commemoration of the Irish Famine may also be of interest.

UCMP shortcuts:
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Sources:

Sleigh, M.A. 1989. *Protozoa and Other Protists.* Edward Arnold, London.

Handbook of Protoctista, ed. by L. Margulis et al., 1990 Jones and Bartlett, chapter 33 by Michael W. Dick.

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